

**CLAIMS**

1. A starting apparatus for an internal combustion engine,  
which is mounted on an automobile to automatically start the  
5 internal combustion engine after an auto stop of the internal  
combustion engine, said starting apparatus comprising:

a cranking module that is always connected to an output  
shaft of the internal combustion engine via a power transmission  
member and cranks the internal combustion engine through  
10 actuation of a rotating shaft, which is interlocked with  
rotation of the output shaft;

a reverse rotation presumption module that presumes  
reverse rotation of the internal combustion engine; and

a cranking control module that prohibits cranking of the  
15 internal combustion engine regardless of fulfillment of an auto  
start condition, when said reverse rotation presumption module  
presumes the reverse rotation of the internal combustion  
engine.

20 2. A starting apparatus in accordance with claim 1,  
wherein said cranking control module controls said cranking  
module to crank the internal combustion engine even before  
completion of a stop operation of the internal combustion engine,  
which is triggered by fulfillment of an auto stop condition  
25 immediately before fulfillment of the auto start condition,  
when said reverse rotation presumption module does not presume

the reverse rotation of the internal combustion engine under fulfillment of the auto start condition.

3. A starting apparatus in accordance with claim 1,  
5 further comprising a revolution speed measurement module that measures a revolution speed of the internal combustion engine, wherein said reverse rotation presumption module presumes the reverse rotation of the internal combustion engine, based on the measured revolution speed of the internal combustion  
10 engine.

4. A starting apparatus in accordance with claim 3, wherein said reverse rotation presumption module presumes the reverse rotation of the internal combustion engine until the  
15 measured revolution speed of the internal combustion engine falls below a predetermined level and a predetermined time period elapses after the fall to eliminate any potential for the reverse rotation of the internal combustion engine.

20 5. A starting apparatus in accordance with claim 1, wherein the power transmission member is either of a full-time jaw gear that couples the output shaft with the rotating shaft and a belt that is spanned between the output shaft and the rotating shaft.

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6. A starting apparatus in accordance with claim 1,

wherein the power transmission member is made of resin.

7. An automobile with an internal combustion engine mounted thereon, said automobile comprising:

5       a cranking module that is always connected to an output shaft of the internal combustion engine via a power transmission member and cranks the internal combustion engine through actuation of a rotating shaft, which is interlocked with rotation of the output shaft;

10       a reverse rotation presumption module that presumes reverse rotation of the internal combustion engine; and

          a cranking control module that prohibits cranking of the internal combustion engine regardless of fulfillment of an auto start condition, when said reverse rotation presumption module  
15       presumes the reverse rotation of the internal combustion engine.

8. An automobile in accordance with claim 7, wherein said cranking control module controls said cranking module to crank  
20       the internal combustion engine even before completion of a stop operation of the internal combustion engine, which is triggered by fulfillment of an auto stop condition immediately before fulfillment of the auto start condition, when said reverse rotation presumption module does not presume the reverse  
25       rotation of the internal combustion engine under fulfillment of the auto start condition.

9. An automobile in accordance with claim 7, further comprising a revolution speed measurement module that measures a revolution speed of the internal combustion engine,  
5 wherein said reverse rotation presumption module presumes the reverse rotation of the internal combustion engine, based on the measured revolution speed of the internal combustion engine.

10 10. An automobile in accordance with claim 9, wherein said reverse rotation presumption module presumes the reverse rotation of the internal combustion engine until the measured revolution speed of the internal combustion engine falls below a predetermined level and a predetermined time period elapses  
15 after the fall to eliminate any potential for the reverse rotation of the internal combustion engine.

11. An automobile in accordance with claim 7, wherein the power transmission member is made of resin.